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TO: Each Supervisor

FROM: for Thomas L. Garthwaite, M.D.
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Jonathan E. Fielding, M.D., M.P.H.
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SUBJECT: **2005 LOS ANGELES COUNTY WEST NILE VIRUS SURVEILLANCE SUMMARY**

During the year, we provided monthly updates on West Nile virus (WNV) activity within Los Angeles County (LAC). The purpose of this memo is to provide an overview of the 2005 WNV season in the context of the past three years.

Since the introduction of the WNV in the continental United States (US) in the summer of 1999, it has become established in nearly all the contiguous states, causing over 10,000 cases and 262 deaths in 2003 alone. WNV arrived in California (CA) in 2003 with three laboratory-confirmed symptomatic human cases, one of which was apparently acquired locally in LAC. In 2004, CA reported 779 human WNV infections, the greatest number of any state in the US; LAC documented 309 cases, more than any other CA local health department. In 2005, CA reported 910 WNV infections; one third of 2,733 reported cases nationally. In contrast to 2004 when WNV activity was focused in Southern CA, in 2005 WNV was widespread throughout northern, central, and southern CA, with Sacramento County reporting the greatest number cases of any jurisdiction, 175 cases. In contrast to 2005, LAC documented only 43 WNV human infections in 6 of 8 SPA's (preliminary data as of November 29, 2005): San Fernando (18), San Gabriel (4), West (1), South (2), East (12), and South Bay (6) (Table 1).

Of the 43 human WNV infections, 37 (86%) individuals were symptomatic; 28 (65%) experienced neuroinvasive disease and 9 (21%) experienced West Nile fever. Blood bank screening detected WNV infection in six asymptomatic donors; all asymptomatic blood donors were re-screened by local health departments and remained asymptomatic. In contrast to 2004 when 12 fatalities were associated with WNV, no WNV-related fatalities were reported this year.

As of November 29, 2005, non-human WNV activity has been detected in all eight LAC Service Planning Areas (SPAs). This includes: 157 WNV-infected dead birds in eight SPAs, 114 WNV-positive mosquito pools in six SPAs, 69 WNV-positive sentinel chickens in four SPAs including the Antelope Valley, and 10 WNV-positive horses in four SPAs. Of the 10 horses, six horses either died or were euthanized as a result of WNV infection.

WEST NILE VIRUS ACTIVITY IN LAC (Table 1)

WNV INFECTIONS	2003	2004	2005
Humans	1	309	43
Horses	0	16	10
Birds (dead)	*65	*840	*163
Sentinel chickens	0	*166	*74
Mosquito pools	*6	*408	*217

*Includes the City of Long Beach

WHY THE DRAMATIC DECREASE IN WNV ACTIVITY WITHIN LAC IN 2005?

In the six years since WNV arrived and spread across most of the US, WNV activity has shown dramatic fluctuations in both human cases and non-human WNV surveillance. This is because maintenance of WNV infection requires a dynamic balance among environmental conditions (local temperature, rainfall, and humidity), bird reservoirs, mosquito populations, human hosts, and other factors such as the intensity of local mosquito abatement services. Mosquito abatement specialists and other WNV experts have speculated that there are various reasons for the dramatic decrease in WNV activity seen within LAC in 2005 compared to that of 2004. One reason could be decreases in local mosquito populations. From March through May 2005, the season was much cooler compared to last year. As a result, mosquito increases normally seen in late spring were delayed. Record rainfall in 2005 created larger-than-normal bodies of water and diluted nutrients, which could have been a leading factor to slow mosquito development. Another possible reason for the 2005 WNV decrease could be the large mortality among local bird populations in 2004 such as crows, leading to decreased avian reservoirs of infection. Ultimately, no one truly understands the reasons for these dynamics. Regardless, intense mosquito abatement by local districts should be acknowledged for playing an important role in controlling WNV infections for the 2005 season.

WNV surveillance is conducted throughout the entire calendar year. This includes surveillance for WNV-infected dead-bird reporting testing, mosquito pools, sentinel chickens, human disease surveillance, and blood donor infection (see attachment).

If you have any questions or need additional information, please let either of us know.

TLG:JEF:DD:sc
Assignment: REF #3239 (A062LM2005)

Attachment

c: Chief Administrative Officer
County Counsel
Executive Officer, Board of Supervisors

Attachment

Human West Nile Virus Cases LAC, 2005